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EXAMINER
LIN, WEN TAI

ART UNIT	PAPER NUMBER
2154	

DATE MAILED: 02/25/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

		Application No.	Applicant(s)
Office Action Summary		09/992,354	CHEN ET AL.
		Examiner	Art Unit	
		Wen-Tai Lin	2154	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on _19 December 2001_.

2a) ☐ This action is **FINAL**.   2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) _1-49_ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) _1-49_ is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☒ The drawing(s) filed on _19 December 2001_ is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☐ All   b) ☐ Some * c) ☐ None of:

      1. ☐ Certified copies of the priority documents have been received.

      2. ☐ Certified copies of the priority documents have been received in Application No. _____.

      3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _11/19/01_.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

1.   Claims 1-49 are presented for examination.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:
The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2.   Claims 2 and 9-49 are rejected under 35 U.S.C. 112 for failing to teach clearly

what constitute the first, second and three data structures. Specifically, the claims

languages used the terms first, second and three data structures to express three

different data structures (namely, a path data structure, an attribute data structure, and

a destination structure). However, in the drawings, Fig.2 and Fig.4 both indicated that

there are only two data structures (namely, an attribute data structure, and a destination

structure). Although the other data structures (i.e., path data structures) have been

mentioned in the specification when referring to 205A-205C of Figs. 2 and 4, it appears

that these path data structures are part of the destination data structure in both figures.

While the claim languages seemingly indicated that the three different data structures

are separate entities, such teachings are not found in the specification, as evidenced

clearly by Figs. 2 and 4.

3.   Claims 6-7, 10, 18 and 38 are objected to because of the following informalities:

(i) the term "the network update message" in claims 10 and 38 appears to lack

antecedent basis;

(ii) the phrase "set of" in claims 6-7 appears to be redundant;

(iii) the first "a" in claim 8, line 2 appears to be redundant; and

(iv) the phrase "attributed oriented" in claim 18, line 2 appears to be a typo of

"attribute-oriented".

It is noted that the above informalities may not be exhaustive. Applicant is

reminded to completely review the claim languages to root out any other possible

errors.

Claim Rejections - 35 USC § 102

4.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5.   Claims 1, 5, 29 and 33 are rejected under 35 U.S.C. 102(e) as being anticipated

by Fernando et al.[U.S. Pat. No. 6704795].

6.   As to claims 1, 5, 29 and 33, Fernando teaches the invention as claimed

including: a computer implemented method comprising:

selecting an updated set of attributes [408, Fig.4] in a routing table before

selecting a set of updated destinations associated with the selected set of attributes and

generating an update message that includes the set of updated destinations for the set

of attributes, wherein the updated set of attributes reference the set of updated

destinations [col.1, line 62 – col.2, line 4 and col.2, line 58 – col.3, line 25; i.e., use the

length of an autonomous system path (which is an attribute in routing table) for

determining whether a preferred route to an associated destination should be updated,

and if a new preferred route is so chosen, a new update message is generated for

advertising the new preferred route to its neighbors].

7.   Claims 9, 37-39 and 42-43 are rejected under 35 U.S.C. 102(a) as being

anticipated by AAPA [Applicant admitted prior art].

8.   As to claims 9, 37-39 and 42-43, AAPA teaches the invention as claimed

including: a computer implemented method comprising:

selecting a first data structure [e.g., 205A, 205B, Fig.2], the first data structure

corresponding to a best path to a destination [paragraph 5];

referencing a first element of a second data structure [e.g., 201, Fig.2] from the

selected first data structure [e.g., 205A, Fig.2], the first element indicating a set of

attributes of the best path; and

referencing a second element of a third data structure from the first element, the

second element indicating the destination [Specification: paragraph 5; Fig.2].

9.   Claims 9, 12, 37 and 40-41 are rejected under 35 U.S.C. 102(e) as being

anticipated by Hariguchi et al.[U.S. PGPub 20020080798].

10.   As to claims 9 and 37, Hariguchi teaches the invention as claimed including: a

computer implemented method [paragraphs 81-83]comprising:

selecting a first data structure, the first data structure corresponding to a best

path to a destination [Level0 array, Fig.6];

referencing a first element of a second data structure [Level1 array, Fig.6] from

the selected first data structure, the first element indicating a set of attributes of the best

path; and

referencing a second element of a third data structure from the first element, the

second element indicating the destination [Level2 array, Fig.6].

11.   As to claims 12 and 40-41, Hariguchi further teaches that the second data

structure is a hash table [paragraphs 10-14].

Claim Rejections - 35 USC § 103

12.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as
> set forth in section 102 of this title, if the differences between the subject matter sought to be
> patented and the prior art are such that the subject matter as a whole would have been obvious
> at the time the invention was made to a person having ordinary skill in the art to which said
> subject matter pertains. Patentability shall not be negatived by the manner in which the invention
> was made.

13.   Claims 2-4, 6-7, 10, 12-13, 14-16, 19-21, 24-28, 30-32, 34-35, 38 and 40-41 are

rejected under 35 U.S.C. 103(a) as being unpatentable over Fernando et al.(hereafter

"Fernando")[U.S. Pat. No. 6704795], as applied to claims 1, 5, 29 and 33 above, and

further in view of AAPA [Applicant admitted prior art], as applied to claims 9-13, 37-39

and 42-43 above.

14.   As to claim 2, Fernando is silent about the destination data structure and

attribute data structure in a routing table.

However, AAPA teaches that the routing table includes a destination data

structure that includes the set of updated destinations, a set of path data structures, and

an attribute data structure that includes an entry indicating the updated set of attributes

[Fig.2].

It would have been obvious to one of ordinary skill in the art at the time the invention was made that Fernando's routing table also includes the same because Fernando's teaching is also based on the gateway border protocol (BGP).

15.   As to claims 3-4, Fernando does not specifically teach the destination data structure is a radix trie or a hash table.

However, organizing a data structure such as a routing table in the form of radix trie or hash table is well known in the art.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to organize Fernando and AAPA's destination data structure as radix trie or hash table because it facilitates the search process through the structure.

16.   As to claims 6-7, AAPA further teaches that the set of updated destinations is a linked list and the updated set of attributes reference the linked list's head [201, 202, Fig.2].

17.   As to claim 14, Fernando and AAPA teaches the invention substantially as claimed including: a network device comprising:

a memory to host a routing table [Fernando: 204, 206, Fig.2], the routing table to include a first data structure to indicate a set of destinations and a second data structure to indicate a set of attributes [AAPA:Fig.2]; and

a set of one or more processors [202, Fig.2] coupled with the memory, the set of

processors to process a network update message [400, Fig.2] that indicates one of the

set of destinations and a subset of the set of attributes [e.g., 408, Fig.4] and to insert the

one of the set of destinations into a chain of elements of the first data structure in

accordance with the network update message, the chain to be referenced by an

element of the second data structure that indicates the subset of the set of attributes

[AAPA: Fig.2].

18.   As to claims 10, 12-13, 15-16, 19-21, 24-28, 30-32, 34-35, 38 and 40-41, since

the features of these claims can also be found in claims 1-4 and 14, they are rejected

for the same reasons set forth in the rejection of claims 1-4 and 14 above.

19.   Claims 1 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Hariguchi et al.(hereafter "Hariguchi")[U.S. PGPub 20020080798], as applied to claims

9, 12, 37 and 40-41 above, further in view of Fernando et al. (hereafter "Fernando")

[U.S. Pat. No. 6704795].

20.   As to claims 1 and 29, Hariguchi teaches the invention substantially as claimed

including: a computer implemented method comprising:

        selecting an updated set of attributes in a routing table before selecting a set of

updated destinations associated with the selected set of attributes [Hariguchi: Abstract;

paragraph 31; 136, 138, Fig.5; i.e., by "identifying a group a elements that have default

routes of a greater prefix length than the inserted or deleted route's prefix length. The identified group of elements are automatically skipped without memory access or route updating because their default routes do not require route updating"].

Hariguchi further teaches that the above facts are reflected in an enhanced route addition algorithm for automatically skipping the entries that has default routes [Hariguchi: paragraph 114]. Hariguchi does not specifically teach generating an update message that includes the set of updated destinations for the set of attributes.

However, Fernando teaches that update message is used for the purpose of informing a router to perform routing update and applying appropriate routing policies [col.1, line 62 – col.2, line 4].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use update message for informing Hariguchi's routers when routing update is needed because network conditions change from time to time and the update message enables all the associated routers to perform consistent update for adapting to the various changes.

21.   Claims 8, 11, 17-18, 22-23, 36, 39 and 44 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

22.   The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

Agarwal et al.	[U.S. Pat. No. 6760777];
Xia	[U.S. Pat. No. 6850976];
Blumenau et al.	[U.S. Pat. No. 6574667];
Srikanth et al.	[U.S. Pat. No. 6556547];
Blumenau et al.	[U.S. Pat. No. 6195703];
Navas	[U.S. PGPub 20030026268];
Huang et al.	[U.S. PGPub 20030026246];
Sultan et al.	[U.S. PGPub 20030014540]; and
Salama et al.	[U.S. Pat. No. 6584093].

23.   A shortened statutory period for response to this action is set to expire 3 (three)

months and 0 days from the mail date of this letter. Failure to respond within the period

for response will result in ABANDONMENT of the application (see 35 U.S.C. 133,

M.P.E.P. 710.02, 710.02(b)).

Conclusion

Examiner note: Examiner has cited particular columns and line numbers in the

references as applied to the claims above for the convenience of the applicant.

Although the specified citations are representative of the teachings of the art and are

applied to the specific limitations within the individual claim, other passages and figures

may apply as well. It is respectfully requested from the applicant in preparing

responses, to fully consider the references in entirety as potentially teaching all or part

of the claimed invention, as well as the contest of the passage as taught by the prior art or disclosed by the Examiner.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wen-Tai Lin whose telephone number is (571)272-3969. The examiner can normally be reached on Monday-Friday (8:00-5:00) .

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Follansbee can be reached on (571)272-3964. The fax phone numbers for the organization where this application or proceeding is assigned are as follows:

(703)872-9306 for official communications; and

(571)273-3969 for status inquires draft communication.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Wen-Tai Lin

February 22, 2005